

(18)



JAPANESE PATENT OFFICE

## PATENT ABSTRACTS OF JAPAN

(11) Publication number: 03176053 A

(43) Date of publication of application: 31 . 07 . 81

(51) Int. Cl

A61F 13/16

A61F 5/44

(21) Application number: 01315742

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(22) Date of filing: 04 . 12 . 89

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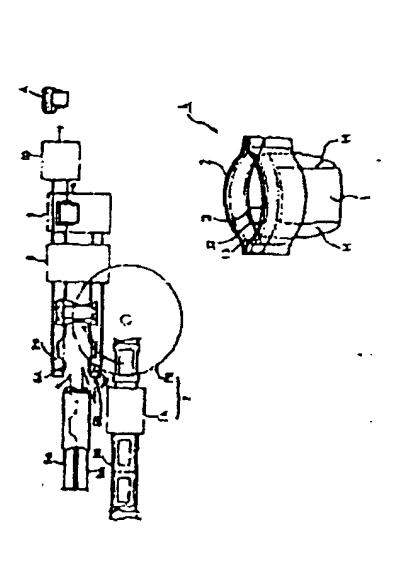
(54) MANUFACTURE OF BRIEFS TYPE DISPOSABLE DIAPER

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## (57) Abstract:

PURPOSE: To reduce costs by enabling an automatic large-scale production method by forming a back body wrapping part and front body wrapping sections to place a diaper main body thereon orthogonally and to bond it thereto.

CONSTITUTION: Optional stock is selected for a back body wrapping section and front body wrapping sections (2 and 3) independently of diaper body 1. In other words, the diaper body 1 is relayed to a turning transfer device 7A behind a suction conveying device 7A and the diaper body 1 is turned by 90 to be supplied to a specified position between belt bodies 2a and 3a of both body wrapping sections perpendicular thereto. Then the diaper body is conveyed to a bonding means 8 to bond it integrally with the belt bodies 2a and 3a of both body wrapping sections. Thereafter, the assembly is conveyed to a folding means 9 to be folded double and side ends of the belt bodies 2a and 2b of both the body wrapping sections are cut while being bonded by a bonding/ cutting means 10.



full translation attached  
No equiv. outside Japan

## Translation of

Japanese laid open patent application number H3-176053

Japanese Patent Office (J P)

LAID OPEN PATENTS GAZETTE (A)

Laid open patent application number H3-176053

Laid open July 31, 1991

INT. CL'S A 61 F 13/15

5/44

Identification code H

Internal office filing numbers 7603-4 C

6606-3B A 41 B 13/02 S

Examination request not requested

Number of claims 1

(total of 6 pages (in the Japanese))

Title of the invention Brief-type disposable diaper production  
method

Patent application number H1-315742

Application date December 4, 1989

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### Specification

#### 1. Title of the invention

Brief-type disposable diaper production method

#### 2. Scope of the patent claim

A brief-type disposable diaper production method involving

a process whereby a water-absorbent material is inserted between an outer sheet and an inner sheet to form a diaper body; a process whereby a front waistband and a continuous back waistband having an elastic member at least at the side is formed;

a process whereby the diaper body is overlapped and adhered to both waistbands in the transverse direction;

a process whereby the diaper body is folded double and both waistbands are brought into contact; and

a process whereby the contacted waistbands are cut to prescribed dimensions and the regions near the cuts are adhered to integrate the waist parts at the edge portions

to produce a brief-type disposable diaper from a diaper body and a single waistband.

#### 3. Detailed description of the invention

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### Field of industrial use

The present invention relates to a brief-type disposable diaper production method.

### Prior art

Known technology relating to this type of brief-type disposable diaper production method is disclosed in Japanese Unexamined Patent Application Number 557-77304: "Diaper-brief and Production Method Therefor".

### Problems to be overcome by the invention

The abovementioned technology is disadvantageous in that as there is a cut-out portion in order to form an opening for the wearer to insert his/her legs, it is necessary to add a process for forming the cut-out portion, which raises production costs.

### Means of overcoming the abovementioned problem

The present invention overcomes the abovementioned problem of the prior art and allows the production of brief-type disposable diapers by an automated large-scale production method involving a process whereby a diaper body is formed; a process whereby a back waist part and front waist part are formed; a process whereby the diaper body is overlapped and adhered to both waist parts in the transverse direction; and a process whereby the diaper body is adhered and integrated.

### Embodiment

The present invention is described in detail based on the embodiment shown in the following drawings.

Figures 4 through 6 show an example of a brief-type disposable diaper produced according to the present invention: 1

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represents the diaper body, formed by inserting absorbent material 13 between outer sheet (for example, a water-impermeable P.E. sheet) 11 and inner sheet (for example, water permeable nonwoven cloth) 12.

2 is the back waist part and 3 is the front waist part, and the material for both waist parts 2 and 3 may be selected independently from the material for diaper body 1, although in this embodiment, the same material is used; the double layer having P.E. sheets 21 and 31 as the outside and nonwoven cloth 22 and 32 as the inside is formed, an elastic member sheet (for example, a polyurethane sheet) 23 and 33 is inserted into part thereof, so that at least the upper edge is expandable. It should be noted that it is also possible to have a single layer elastic sheet, to form a completely expandable construction. It should be noted that as waist parts 2 and 3 are preferably of an air-permeable material, it is desirable either to take the nonwoven cloth and elastic sheet, and exclude the P.E. sheet, or, when a P.E. sheet is used, to puncture a plurality of small holes therein. It is also possible to totally or partially affix the elastic member (rubber thread, rubber tape or the like) to a sheet of suitable material, to form an elastic sheet.

Moreover, the hole parts H for the insertion of the wearer's legs are dictated by the width and shape of the diaper body 1 and the width and shape of waist parts 2 and 3, and generally, the shape is such that the holes are toward the front side.

The brief-type disposable diaper production method of the

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present invention will be described below with reference to Figures 1 through 3.

Figure a shows the diaper body 1 production process: absorbent body 13 is placed on outer sheet (back sheet) 11 supplied from outer sheet roller 11a, then inner sheet (top sheet) 12, supplied from inner sheet roller 12a, is supplied thereon, to achieve a sandwich-like insertion of absorbent body 1 between outer sheet 11 and inner sheet 12; then this is transported by the first conveyor device 4 to adhering-cutting device 15, and the circumference is firmly adhered by adhering-cutting device 15, or adhered with adhesive, then cut to the required shape. It should be noted that this process is the same as known diaper production processes, and it is possible to employ a conventional production line for disposable diapers.

It should be noted that the adhering-cutting device 15 comprises two stages: first unit 15a and second unit 15b. In first unit 15a, only adhesion and the cutting of cut-away parts P proceeds, to continuously form diaper body 1, then diaper body band 1a is transported to the next process, and may be cut crosswise to the required dimensions by second unit 15b when in the vicinity of the waistbands 2,3-adhesion process.

Moreover, as there are no cut-away parts P when diaper body 1 is long, it is also possible to achieve the aims of the present invention by only adhering in first unit 15a, then cutting in second unit 15b.

There are various possible shapes for the cut-away parts P, and the shape can be selected according to the shape of the

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waistband 2,3 and the desired shape of hole parts H.

Figure 1(b) shows a waistband 2, 3 production line: elastic member sheet 23a, supplied by elastic member sheet roller 14, is cut along a continuous S-shaped cutting line in the central portion by cutting device 24 to form a pair of bands, back waistband 2a and front waistband 3a.

It should be noted that in the case of the multilayer constructions shown in Figure 3 (outer sheet (P.E. sheet) and elastic member sheet, inner sheet (nonwoven cloth) and elastic member sheet, or outer sheet and elastic member sheet-inner sheet), if elastic member sheet 23a is a band of the same width, and only part of sheet 21a, 22a is adhered, the elastic member sheet can be used effectively without cut-away parts, and holes of the desired shape can be found by selecting a suitable shape for waist part 2,3.

Figure 1(c) integrates the diaper body 1 process of Figure 1(a) and the waistband 2a, 3a process of Figure 1(b), to show the brief-type disposable diaper-forming process: the second conveying device 5a, 5b for waistbands 2a, 3a extends to become the third conveying device 6A and the force conveying device 6B.

Diaper body supply means 7 comprises suction conveying device 7A and rotation conveying device 7B, such that suction conveying device 7A for conveying the diaper body 1 that has been cut to the required dimensions is provided at the end of the first conveying device 4, after which diaper body 1 proceeds onto rotation conveying device 7B, then rotation conveying device 7B rotates the diaper body 1 through 90°, to supply diaper body 1

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transversely to a prescribed position on waistband 2a, 3a.

It should be noted that rotation conveying device 7B receives the diaper body 1 on the conveying surface of suction conveying device 7A then supplies it by rotating 1/4 of a rotation while suction continues, then rotating the diaper body 1 that is between third conveying device 6A and fourth conveying 6B through 90°, and diaper body supply means 7 can achieve the aim by means of a suitable conveying means as follows: the adsorption surface of the diaper body is rotated through 90° according to the rotation of a suction rotation drum provided so as to be continuous with suction conveying device 7A, then the diaper body proceeds to a suction conveyor belt, whereupon it is conveyed in a transverse direction with respect to the conveying devices, thereby allowing diaper body 1 to be supplied between waistbands 2 and 3.

Diaper body 1 is then conveyed to adhesion means 8 and adhered to waistbands 2a, 3a by a suitable adhesion means such as an adhesive or heat seal.

It is then conveyed to folding means 9, and folded double by said folding means 9 to superimpose front waistband 2a and back waistband 3a.

The sides of the superimposed waistbands 2a and 2b are adhered and cut to the required shape by adhering-cutting means 10, to yield brief-type disposable diaper A.

#### Advantages of the invention

The present invention yields a brief-type disposable diaper by adhering and integrating a pair of waistbands and a

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diaper body and cutting to the required dimensions and so conventional diaper production lines can be used for the diaper body, the waist parts are supplied as bands and automated mass production is possible due to a belt conveying device, so the brief-type disposable diapers can be effectively produced at extremely low cost.

#### 4. Brief description of the drawings

Figure 1 is an explanatory diagram for the brief-type disposable diaper production method of the present invention: Figure (a) shows the diaper body production process, and Figure (b) shows the waistband-integrating process.

Figure 2 is a diagram of the diaper body, and Figure 3 shows the front waist part and back waist part.

Figure 4 shows an oblique view of a brief-type disposable diaper produced according to the present invention, Figure 5 is plane view and Figure 6 is a cross-sectional view of the diaper body.

- 1 Diaper body
- 2 Back waist part
- 3 Front waist part
- 7 Diaper body supply means
- 8 Adhesion means
- 9 Folding means
- 10 Cutting means

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送阅于3-170053 (2)

此處に用ひたことを告げし。又又此の上に御題  
を御用ひたる所也。

Q3A8

以上は日本に来て貢献度にむづいて、工作を  
説明する。

第4回力士第6回は本発明により作成されたアリーフ部使い捨て羽の一つの一部を示し、14枚のつまはて、羽翼シート（例えば、羽翼承持シートであるP.と、シート）11と内翼シート12（例えば、翼承持シートである不織布）とで、組成13を組み込んで形成されている。

2は接着剤を塗り重ね、3は両側面張り紙であり、  
両側面に張る2・3は、おせつ本体1とは独立して  
任意の形状を形成できるが、実用例では丸のうす  
板1と両側の張紙を接着し、丸板をP・E・シ-  
ト21・31、内張を不織布22・32とする二  
層構造とし、その一端に両側面紙シート（例えは、  
ポリウレタンシート）23・33を読み込み、少  
なくとも上端部においては両側面のある端部とし  
た24、両側面紙シートの端部周囲とし全周部

電シート111との間に組み込んだ時、荷物の荷重  
量113に向ける上部荷重部114により荷重し、荷物  
の荷重部116により荷物部を荷重し、また荷物  
部で荷重して荷物部114に荷重する。28、公知の  
既往の電動工具と同様であり、現在の電動工具  
は電動工具212と電動工具213とを組み合て、

され、開拓初期段階では、同じユニット15  
など第2ユニット13などとの3段階とし、第1  
ユニット13などでは開拓とともに明確区分され  
る段の八を設けて、明確にさせた上で開拓  
して、させたままははいへと改修に取り組ん  
だ結果では段2・3との開拓工事の段階におい  
て、第2ユニット13などにより最初方角に開拓  
地盤に付随してもよい。

また、かなり本体上の形状を直角形はとする場合に、切削部分Eが存在しないので、もしユニット130では用意のみを行なう、またはユニット130で切断することにより直角を造成することが可能。

35. ପାଇଁଲିଏନ୍ଦ୍ରପାତ୍ର, ଶମକୁଳପାତ୍ର

次に、第1回乃至第2回を参照して、本発明によるとブリーフ状及び他の何れかの請求書等を提出する。

2・3の結果より示すと同様に日本に  
より多くのものが見られるものである。

第1回の6回は、前回回り原回数は2・3の2回をラインを飛し、現在原回シートロール14より  
既切られた原回シート23回を原回数24  
により中止原回の直後3枚切削しての繰りして一  
枚の原回数を形成し、一方を背面側原回数は162  
枚とし、原回数を原回数の2倍とする。

など、第3回に示すことく、内質シート（P-2、シート）と内質紙（シート）、内質シート（不織布）と内質紙（シート）、または内質シートと内質紙シート内質シートとの多層複合とする場合に、内質紙（シート）を同一市の卸業者から購入し、内質紙（シート）を同一市内の卸業者から購入すると、内質紙（シート）を適切に切替部分を正しくことなく）使用する場合、且つ同一の卸業者（同一の販売者）を経由して同一の内質紙（シート）を購入することによって内質紙（シート）を

また他のそれは、お前のやうなことはして、お前  
のやうなことをおこなはせよ。」などと、一喝して、

新编平3-17G053(3)

今般、既向井道場主78歳は吸引道場主8人の  
道場上の力合つ本は1を実行なり。吸引しつつ  
シノイ腰にして既向井道場主8人と既向井道場主  
18との間に力合つ本は1を90度傾向させて実  
行するものであるが、吸引道場主8人に腰紙し  
て吸引腰はドラムを打けてドラムの腰紙に押って  
力合つ本の吸引腰を腰紙させて90度傾向させ  
たのち吸引道場主8人に引腰を吸引道場主と  
各腰紙を腰紙に押して、各腰紙

がて実現されることで、ベルト駆動方式による大  
量の電気遮断は可能となることがでて、そのため電  
コストをアリーフルードに近づけることを実現でき  
る。また、この構造は、

#### 4. 田舎の農業と風土

第一回は本章題によるとブリーフ席をいきて40  
つの盗賊が油を求めて本店で、本店には40つ本  
の盗賊が、本店は本店の40つ本の盗賊をそ  
の盗賊をそ。

第2回は8巻の本ほの最初回、第3回は8巻の最初回  
第2巻と8巻の最初回の最初回。

高木田は本発明により製造されたブリーフケースにおいては、その2つの表面は、第1面は平滑面、第2面は本発明の筋面である。

1を算出する式は表2-3間に示すとおりである。ここで式は既に示す通りであるが、  
により目的を達成することができる。

次に用を学校へ渡達した後、ヒートシール、  
各号の運送の良否手段により、本はおおづ  
く何どう取り扱はれてゐるかと相談して一  
回RTS。

そののち、所定みすだきへ送達し、該所長みすだきにより二所はに封印せしと同封御用紙の封印紙は  
2枚と封印用紙2枚を以て封印せしと同封御用紙の封印紙は

重ね合わせた所は四回繰り返す。24・25の間は、用音の順序をより複雑することなく、用音部分に明確して、ブリーフ且度いれておこう。

१३४०१५

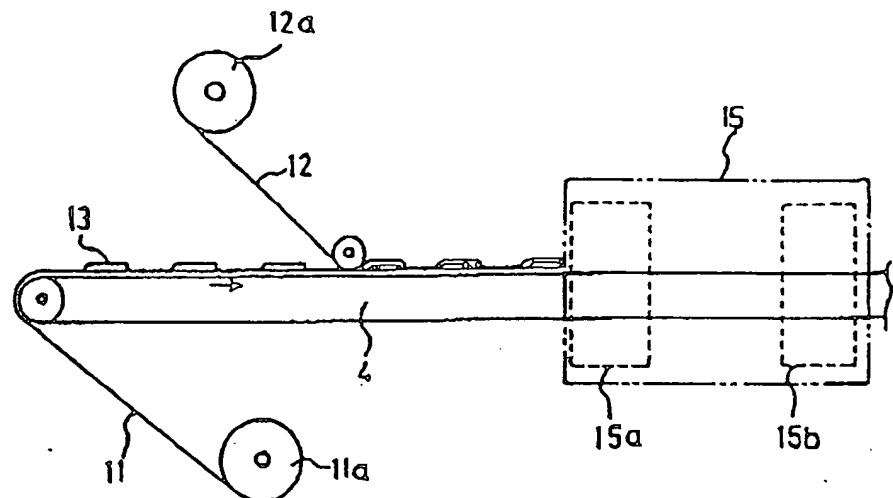
本発明は、一般的の熱可塑性樹脂と、なりつけなども、反応一途化し、樹脂と樹脂に接着することにより、アリーフ状に複数のガラスを発生するものであるから、ガラス本体は複数のなりつけ樹脂インを封止することが可能となる熱可塑性樹脂である。

10--印譯手稿

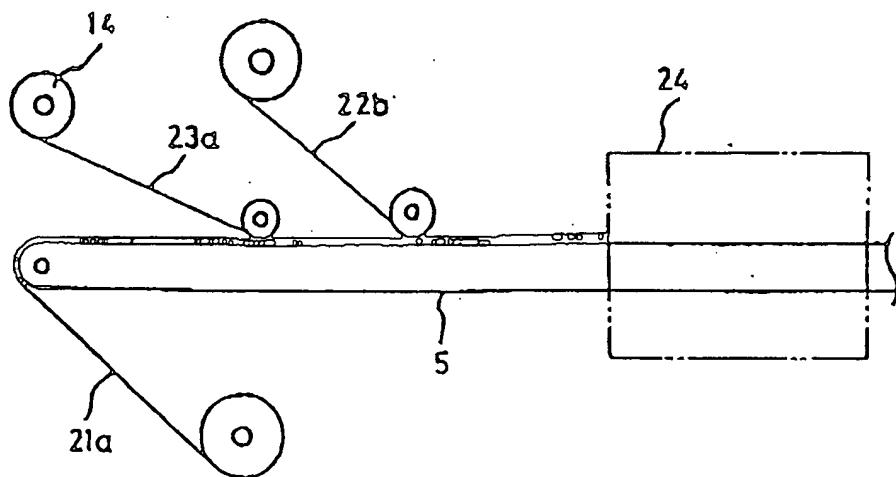
出資人 楊氏合夥 金 元  
代理人 甘耀士 廣行 文昌

特開平3-176053 (4)

第1図 (a)

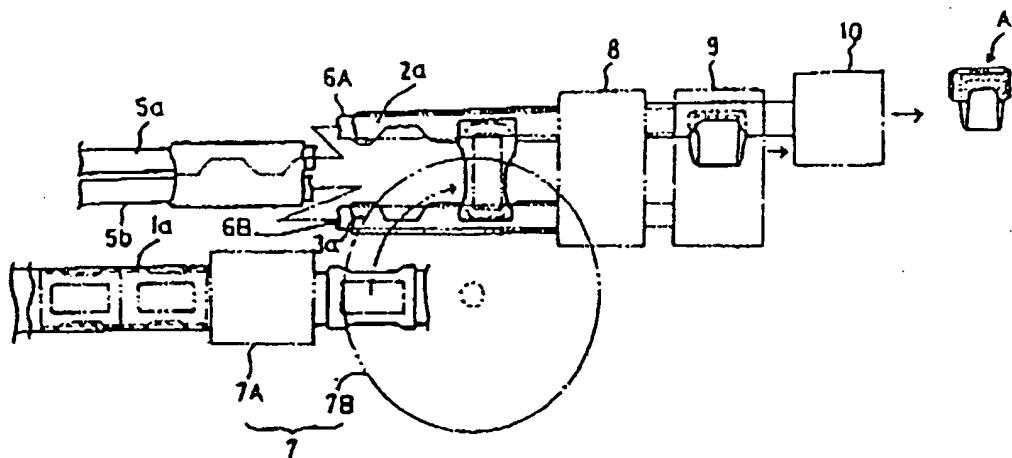


第1図 (b)

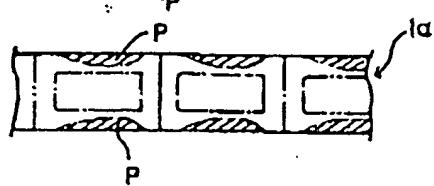
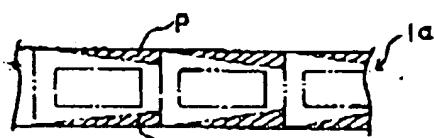


特開平3-176053(5)

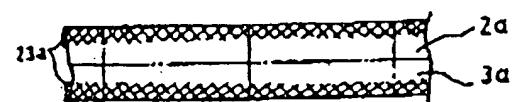
第1図 (C)



第2図



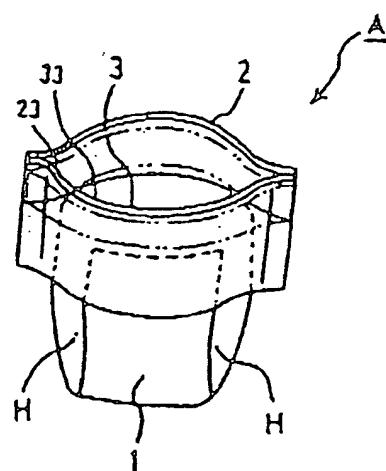
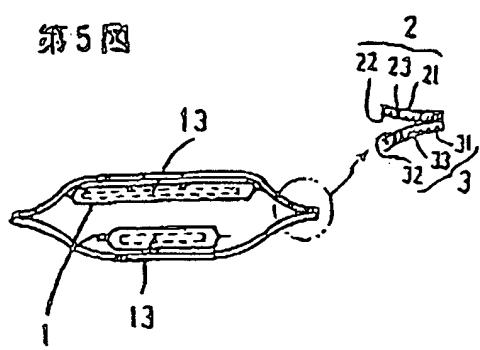
第3図



特開平3-176053(6)

第4図

第5図



第6図

